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Address all communications to Room 107, Anatomy Building

EDITORIAL

The undergraduate body of this Medical School has recently been asked to ratify the Health Brief prepared by Camsi for presentation to the Canadian Youth Commission. If it has done nothing else, this has accomplished two things: the recognition that our elected representatives to Camsi have been negligent in the performance of their duties, and the fact that very few medical students have any sound knowledge of Health Insurance.

The first criticism may perhaps be directed with equal justice at the undergraduate members of Camsi, who are not in a strong position to protest when their own interest in Camsi has been so slight. However it seems clear that the responsibility of the elected representatives is to keep the members at large informed as to the programme of the organization. The Health Brief tells us that the work is the result of a meeting held almost a year ago. Surely the time to canvass student opinion on such an important matter was a year ago, but as far as we can determine this vital matter was given no publicity until a very recent date. It does not seem a wise policy to request student opinion on this subject when such opinion is of necessity faulty by reason of its very hastiness. Under these circumstances it is inevitable that Camsi officials will be criticized for attempting to "railroad" the plan through the association, and is always the case in such an organization, the enthusiasts are suspected of shadowy political alignments and of a generally "agin' the government" outlook. This has unfortunately been the case at our Medical

School. We can only hope that these are again hasty judgments, born of the urgency with which the plan was thrust upon us.

The second, and by far the more serious criticism, is one which is not the fault of any member of Camsi. The whole problem of Health Insurance has unfortunately become a political football, and the individual outlook has become that of the individual's political party. Surely University students are above such crass susceptibility—surely our knowledge and our skill in thinking will enable us to produce a plan designed to fill the country's needs, and not the needs of a political party. This is but another manifestation of a matter we have previously discussed in these columns: the urgent need for saner reasoning in the profession. In this case the matter goes further, and emphasizes Canada's greatest need: more complete education for all who are mentally equipped to receive it. Health Insurance is the people's problem, as such it will only be successful when it is but one aspect of general social, educational and economic advance in this Dominion. We submit that Health Insurance per se will be useless—that it will provide symptomatic treatment only for a deeply rooted social disease. Can we tolerate this denial of prevention, the prime tenet of Preventive Medicine?

Erratum

In our last editorial we mistakenly stated that Professor A. R. M. Lower was President of United College, University of Manitoba. He was President of the Canadian Historical Society—and his article "Two Ways of Life" constituted his presidential address to that body. Our sincere apologies for any embarrassment this error may have caused.

TWO OUTSTANDING TEXTBOOKS

"PRINCIPLES AND PRACTICE OF OBSTETRICS" by Joseph B. DeLee, A.M., M.D., and J. P. Greenhill, B.S., M.D. Eighth Edition. 1101 pages. The magnificent collection of obstetrical illustrations that appear in this book has drawn praise from every corner of the globe. There are 1074 life-like illustrations on 841 figures, with 209 in color—far more than in any other one-volume work on the subject. $11.50.

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PAIN FROM THE GENITO URINARY TRACT

JAMES C. McCLELLAND, F.R.C.S.

Pain as a symptom emanating from the genito-urinary tract is a guide to the location of the condition causing it. The genito urinary tract is made up of the kidneys, ureters, bladder, prostate, seminal vesicles, urethra, testes and epididymes. Each of these organs may produce pain of a varying character and in a location which is a great help to us in the diagnosis of its cause.

The information required to describe adequately a pain should include its exact location, character, radiation, influence of rest, influence of motion, what brings it on and what stops it.

Kidney Pain

Kidney pain is located in the flank, that area between the lower margin of the ribs and the iliac crest. Its character may be any degree of pain from a dull ache to a very acute colic. The pain may be so severe as to double the patient up or cause him to roll on the floor in agony. Also, he may require an anaesthetic to relieve it. The radiation of kidney pain is from the back to the front in the area just below the ribs. It may also go to a slight degree down the course of the ureter.

Rest and motion may not influence the pain from the kidney, though frequently a kidney colic has been known to come on during the patient's sleep. Also, they may be started by the jarring of walking and suddenly stepping down from a curb. Also, the jolting of driving along a rough road has been known to start kidney colics. These pains may last for twenty to thirty minutes and stop of their own accord.

The *tenderness* of kidney pain is very important to locate accurately. This is situated exactly in the costo-muscular angle, being the angle made by the last rib and the lateral margin of the erector spinae muscle.

Do not confuse the "kidney pain" which many advertisements illustrate with the picture of a man in great distress from a pain in his back. The common "lumbago" pain (whatever that covers) is aggravated by asking the patient to stand up from his chair. You will find the patient rise and very gingerly straighten his back. This is the muscular or fibrositis pain and its tenderness is *not* in the costo muscular angle but over an area of the erector spinae muscle. This is the usual type of pain when your patient says that he has a pain in his kidneys. It is muscular and rarely from the kidneys.

The pain in the kidneys may also be the gradually increasing pain of distention as seen in a hydronephrosis which reaches its peak after which the kidney empties and the patients give the information that the disappearance of the pain is followed by the passage of a large quantity of urine. In rare instances a left kidney pain is referred to the left shoulder.

Ureteral Pain

Ureteral pain follows the course of the ureter. This starts where the kidney pain leaves off in the front of the flanks, just below the ribs and goes downward into the right or left lower abdominal quadrants pointing to the spines of the pubis. The character of ureteral pain is similar to kidney pain and may vary from a very slight ache to an acute agonizing pain. It radiates along the course of the ureter and down into the external genitalia, the testicle in the male or the labia majora in

the female. It also may radiate down the inner side of the thigh. It may give pain in the kidney due to distention of that organ when the urine accumulates. An ureteral pain may also be accompanied by some frequency, such as is seen with a small stone in the intramural portion of the ureter, producing a localized irritation in the bladder.

The tenderness of ureteral pain is usually over the area of the ureter where the cause, such as a stone, is located. Vomiting is a common accompaniment of ureteral pain, as also is abdominal distention. Ureteral colic is sometimes difficult to distinguish from an interstitial obstruction when abdominal distention is present. The disappearance of the pain leaves a bruised feeling in the muscles in the area of the original pain.

Bladder Pain

Bladder pain is located in the mid line of the abdomen and commonly caused by overdistention of the bladder. It may be dull or sharp and will disappear when the bladder is emptied. A bladder pain may be referred to the tip of the urethra as seen with an irritation of the trigone by a stone or an acute inflammation in this area.

Prostatic Pain

Prostatic pain may show itself in four areas (1) over the symphysis pubic, (2) perineum, (3) over the sacrum, (4) in the urethra one inch back of the meatus.

The commonest lesion producing prostatic pain is a chronic prostatitis and this may give pain in any of the above areas, though rarely in more than one area at a time. The most frequent is the backache over the sacrum. That in the urethra, perineum and pubic areas occur in about equal frequency. The character of these prostatic pains is usually a dull ache which may be mild or a very annoying ache. The pain in the urethra is described by these patients as an "ulcer" present in the urethra one inch back of the meatus. These patients usually have convinced themselves that this ulcer is real and it is difficult to assure them that it is the area of a referred pain from the prostate.

Seminal Vesicle Pain

Seminal vesicle pain is referred to the middle third of the inguinal ligament. This is a small area the size of a fifty cent piece and on palpation of the seminal vesicle itself will reproduce the pain. This type of pain is sometimes referred upward along the course of the ureter and simulates a ureteral colic.

It may be fairly severe pain which comes on suddenly like a ureteral colic and be distressing, due to its frequency of occurrence.

Urethral Pain

Urethral pain may be localized in the urethra, due to a localized cause or be referred as mentioned above, in the referred prostatic pain.

External Genitalia pain is usually due to a local condition, except in the referred pain from the upper portion of the urinary tract.

Conclusions

When one has satisfied oneself as to the pain originating in some portion of the urinary tract, a detailed investigation of the urine will give added information which will aid in diagnosing the cause of the pain. Calculi in the urinary tract are frequent causes of pain and are usually diagnosed by an X-ray of the kidneys, ureters and bladder. Further information may be necessary and this is obtained by cystoscopy and pyelography. The pain complained of will help localize the condition and lead to a complete investigation and a diagnosis.

SKIN GRAFTING

L. S. DAVIES, M.D.

Skin grafting is a therapeutic measure of the greatest utility for the replacement of surface losses, because the wound if left to itself may or may not heal spontaneously.

The resultant scar of a wound has no semblance to normal skin—it is devoid of hair and glands—is easily traumatized; it is subject to recurrent ulceration and infection and it is not adapted to weight bearing. Further, a scar causes contraction and deformity and impairment of function.

A skin graft will correct or minimize these effects.

Skin grafting finds its present applicability in

1. The correction of congenital defects —e.g. syndactylia, hare lip, etc.

2. The relief of acquired deformities causing impairment of function—e.g. in the case of resulting scars of deep burns.

3. The replacement of degenerated tissues as in the case of certain skin affections—e.g. irradiation dermatitis.

4. In the substitution of mucous membrane linings such as that of the orbital cavity, the nose and mouth, etc.

Skin grafts are divided broadly into two main groups.

(A) The Free Skin Grafts
(B) The Pedicle Flaps.

(A) *The Free Skin Grafts* are those which are severed *completely* from their source of nourishment. They depend for their survival and existence on a capillary oozing of serum from the graft bed and by infiltration of vessels.

(B) *The Pedicle Grafts* are grafts which at no time are separated from a carefully nursed blood supply which is maintained by means of a pedicle of skin and subcutaneous tissue.

Let us now consider *the Free Skin Graft* in more detail.

Free Skin Grafts are classified according to the thickness of skin which is cut. The very thinnest grafts are called Ollier-Theirsch Grafts and are mere shavings of epidermis.

The very thickest grafts are called "Wolfe-Krause" or Full Thickness Grafts and they include the epidermis and the full thickness of the corium.

In between, are a range of grafts of variable thickness—these are called Intermediate Grafts, or Partial Thickness Grafts or by the term of Blair & Brown—"Split-Skin Grafts".

There are at least three important characteristics of Skin Grafts which depend on the thickness or thinness of the graft.

1. The skin graft tends to *wrinkle and contract* in direct proportion to the thinness of the graft. That is, the thinner the graft the greater the contraction. To a small degree this tendency to contract may be partially offset by the base onto which the graft is placed. If a thin graft is placed on a rigid base such as periosteum or a denuded scar, the amount of contraction will not be as great as when the same thin graft is placed on an area with a moveable base such as on the neck. A very thin graft may contract as much as 50%. The thick grafts contract to a very slight degree.

2. The *final appearance* tends away from that of normal skin more or less proportionately to the relative thinness of the graft, i.e. a thin graft has the worst

appearance of all free grafts. A full thickness graft most nearly approaches the normal skin in appearance.

3. The thicker the graft is, the greater hazard one runs to obtain a successful "*take*". On a granulating surface one rarely obtains a successful "take" with a full thickness graft, but the chance of success with a thin graft is close to 100% on the same area. The reason for this is as follows. The epidermal layers of the skin have no blood vessels and they depend on the permeation of lymph from the corium for survival. A thin shaving of skin will therefore be able to obtain nourishment from the lymph present in the base upon which it is set. The *corium* on the other hand depends on vessels within it for nourishment. Thus a full thickness graft will die unless there is infiltration of vessels from the base upon which it is set.

We shall now consider the *Ollier-Thiersch Graft.* These grafts were first brought to the attention of surgeons by Ollier in 1872 and by Thiersch in 1886.

It consists of a thin shaving of skin cut just below the germinal layers of the epidermis.

About 10 years ago Blair and Brown introduced a graft cut a little thicker so as to include 1/3-1/2 of the corium and they called this graft a "split-skin graft". The thin Thiersch and these split-skin grafts have great similarity in so far as their properties are concerned.

Among the advantages of these grafts are the following:

1. They "take". very readily, in fact a "take" is almost certain. The reason for this was given before: i.e. the epithelial cells have the ability to derive from the lymph fluid the sustenance they need for continued life and therefore the graft is readily nourished by fluids present in the base upon which it is imposed.

Thus these grafts may be placed with confidence on granulating surfaces or aseptic denuded surfaces.

2. They may be cut and obtained quickly.

3. Any available flat surface of the body may be used as a donor site—the thighs are easiest but the abdomen, back, buttocks and upper arm are often used.

4. The donor site bleeds only in fine punctate points and heals rapidly from the base, usually being completely epithelialized in 14 days and healing occurs without scarring. If necessary the same donor site may be used again after 3 months, and as many as 5 successive crops have been taken from one site.

5. Large areas of skin may be grafted at one operation—as much as 200 square inches at one time and the time of healing does not depend on the size of the graft.

6. The graft may be applied with relative speed.

7. The post-operative dressing period is short—from 10 days to 2 weeks—this is of economic importance to the patient.

To offset these advantages are some very important disadvantages.

1. Contraction and wrinkling—as mentioned before the thinner the graft the greater the tendency for contraction and wrinkling to occur.

2. Failure to match the surrounding skin in colour and texture. The graft may become too deeply pigmented or it may lose its pigmentation. Often this contrast is accentuated by tanning by the sun's rays.

3. These grafts provide insufficient protection from trauma and for weight bearing. However if they are used on surface where weight bearing and repeated trauma

are not factors, such grafts may give sufficient protection.

These grafts are used in areas of the body where their disadvantages will not be important factors and where the advantages offset the disadvantages. The greatest use of the *very thin Theirsch graft* is in lining mucous cavities such as the eye socket, or mouth. The graft is fixed in position by wrapping the graft around a mould, outer surface next to the mould. Sweat glands, hair follicles, sebaceous glands all lie in the deeper layer of the skin and none are transferred to the new location where they would be troublesome.

The *thin split-skin grafts* are the grafts of choice on a fresh clean granulating surface or on clean denuded surfaces located where clothing will hide any change in colour or wrinkling. In women very few such areas are applicable because of evening gowns and bathing suits. A sufficient amount of split-skin graft will correct cicatricial contractures which cause deformities and impairment of function, in such areas as the axilla and the cubital and popliteal fossae. Upon the orbicularis oris and the orbicularis palpebrum these grafts are useful since they simulate lid skin which is the thinnest in the body.

The *thick split grafts* must be considered separately. They combine to some extent the advantages of the thin grafts with those of the full thickness grafts. The use of the thicker grafts has received an impetus by the invention of the Padgett Dermatome. With this instrument one is able to cut large sheets of skin accurately, to any measured and desired depth and with uniform thickness.

The thick split grafts are cut from 75% to 90% of the thickness of the skin. Padgett calls it a ¾ thickness graft. There are many distinct advantages obtained by the use of this graft.

1. It has a *high percentage of "take"*—almost as high a percentage of "take" as the thin split grafts and a much higher percentages of "take" than the full thickness graft. Because of this one can extend the magnitude of reconstruction to greater limits than with full thickness grafts.

2. This *graft contracts little*, comparing favourably with the amount of contracture which a full thickness graft undergoes.

3. *Good protection* is offered. In fact protection is adequate to warrant its use over the palm and back of the hand.

4. The *number of operations* required, as compared with the number of operations required for full thickness grafts is considerably reduced because the quantity of skin removed is greater and because the percentage of "take" is higher.

5. The *appearance* as a rule approaches that of normal skin in so far as texture and colour are concerned.

6. The *donor area* heals quickly and does not have to be sutured. Healing occurs in 12-14 days.

7. The *post-operative period* of care is relatively short.

It has of course some disadvantages:

1. It cannot be used on a granulating surface because of the small chance of "take". It is always used on aseptic denuded areas.

2. When used on the face there is sometimes a marked scar between the graft and normal skin when healing has occurred, and some men are not satisfied with the colour and texture of this graft for use on the face.

3. There is a tendency toward heavy pigmentation of the graft, especially in brunettes, which will detract from the cosmetic results.

4. Grafts which are cut deep, cause, in

a small percentage of cases, some scarring of the donor area. This can be minimized, in a person who shows this tendency, by careful use of X-rays.

The graft may be used to advantage in the following situations:

1. For relief of cicatricial contractures.
2. On the face.

Padgett claims very good results by use of the thick split graft for most face work especially cheek and neck but admits that when a full thickness graft "takes" it is superior. When the area to be grafted is small and has a firm base, e.g. forehead, a full thickness graft is distinctly better than a thick split graft.

3. For use in correcting deformities of the hand when the tendons are covered by subcutaneous tissue. It should not be used to cover bare bone or bare tendon.

Method of Cutting

These thin and thick split grafts may be cut free hand with a long knife (a Blair knife) or by means of a Padgett Dermatone.

When using the free hand method, the skin is held tense and flat by traction pressure of wooden spatules or by small straight-edged flat pans held on either side of the knife. Blair and Brown have invented suction boxes which are hollow brass boxes with the underside open and which are connected to a suction machine by a hose. The fundamental idea is to get an area which is flat, which is on tension and which is immobilized so that the knife cuts uniformly. One of the spatulas or suction boxes is held stationary and the other is made to draw progressively from the stationary one, just ahead of the advancing knife. Considerable skill is necessary to cut free hand.

Padgett's dermatone consists of a metal half drum with a 10 by 20 cm curved surface. From its axle a sliding knife revolves over this surface and is adjusted by micrometer screws to cut at a determined distance from the curved surface of the drum. Rubber cement is spread on the drum and on the skin and when these two surfaces become adherent by contact the skin can be pulled up and cut uniformly at any desired thickness. If one wishes to cut a pattern on the skin, the rubber cement can be nullified by putting a solution of talc and ether on the skin not to be removed.

Padgett finds that the Theirsch grafts have a thickness of .008 to .010 inches.

The thin split grafts are cut at .012 to .016 inches.

The thick split grafts are cut at .020 to .024 inches.

Much less skill is required to cut with a dermatone than by hand and it is a quick method. Areas previously not available are now useful, e.g. satisfactory skin grafts can be obtained from the pectoral and scapular regions in markedly emaciated individuals, the lumbar region, the posterior gluteal region, relaxed pendulous abdomens and over ribs if the patient is not too emaciated—all in regions or under conditions in which the skin graft knife despite the utmost dexterity, is of no great use.

As a general rule the skin is taken from some part of the inner thigh or upper outer thigh or the abdomen.

If possible the graft should be large enough to cover the whole area and even extend beyond the edges. If this cannot be done, the fewer the grafts one has to cut to gain this end, the better. Grafts are always cut large enough to allow for some contraction.

The Full Thickness Graft
(Wolfe-Krause)

The full thickness graft consists of epidermis and whole thickness of the corium or dermis, but it contains no subcutaneous tissue.

It has many advantageous properties:

1. It *undergoes slight contraction and no wrinkling.*

2. The resulting surface after a perfect "take" will more nearly approach that of normal skin in colour and texture than that following the application of any other free skin graft.

3. It gives the *greatest protection* possible to obtain by the use of a free skin transplant.

Its disadvantages are:

1. It cannot be used on a granulating surface for the probability of "take" is very slight. It is always used on an aseptic denuded area. On an aseptic denuded area one runs about a 10% chance of losing a varying part of the graft.

2. It is particularly difficult to get a full thickness graft to "take" in its entirety on an aseptic denuded surface which is concave or which has a great deal of unevenness of base such as the axilla. On a concave or convex surface with a firm rounded base as a rule a "good take" will occur.

3. Its removal creates an open wound at the donor site which does not heal spontaneously by skin regeneration as does the donor site of the split grafts. The open wound should always be sutured, or if this is not possible even after undermining the edges of the wound, the wound should be covered with a split graft.

4. It is rather slow and tedious to take away from the donor site. It is also tedious to apply and requires more care.

Indications for Use

On the face, or on the neck, or on the palm or dorsum of the hand including the knuckles or between the fingers, if one can obtain a good "take" with a full thickness graft, the general result, both as to function and appearance will be the best that can be obtained.

It is used on the face in areas such as the forehead, where it can be applied with firm pressure against a firm even base. It is used for the reconstruction of the eye brows, hair-bearing skin being used from the scalp or pubis.

Thick split grafts are usually used on the cheek and neck rather than full thickness grafts.

Particularly useful for full thickness grafts to the face because of excellent texture and colour are the grafts obtained from behind the ear, and the supraclavicular fossae. The skin of the upper lid is often used to repair a lower lid. Free skin from the inner aspect of the arm is second choice.

Technique

In planning the operation one has to open up the defect very completely, overcorrecting any deformity or contracture as much as possible. Now the donor site can be marked out to pattern with methylene blue. The graft is then marked out by an incision just through the derma, and the skin removal is started by carefully undercutting the border with a very sharp knife. The graft must be cut thin; the whole thickness of the skin but nothing more being taken. No fat should remain on the undersurface.

As one cuts with the scalpel, the skin must be kept on tension. If Kelly clamps are placed at the very edges, at rather short intervals, proper tension may be

kept on the skin by means of traction on the clamps.

If one rolls the skin graft over a gauze roll held in the fingers of the left hand, this will aid in giving a slightly convex surface at the line of incision. Webster has recommended a special roller for this purpose which is of considerable aid. Fine rakes at the edges of the skin incision close to the point of undermining help to keep up proper tension. The Kelly clamps are removed as soon as possible for they are traumatizing to the skin.

Special Types of Free Skin Grafts

Riverdin in 1869 advanced a graft in which the epidermis was pinched up with forceps and a small piece, a few millimetres in diameter, cut off. Many such pieces were cut off and impaled in the granulating bed to be grafted, the principle being that epithelium would grow out from these islands and soon effect a covering of the area. This has come to be known as the "Pinch Graft"—which term is not quite correct, as the pinching and cutting with the scissors is too traumatizing and is no longer used. Nowadays, the skin is picked up on the tip of a needle and sliced away with a knife or razor. In looking about for a simple technique which could be used without much difficulty by almost anyone, J. G. Davis described in 1914 what he called the "Small Deep Graft". This was based on Riverdin's idea, but instead of being merely an epidermal island of tissue as was Riverdin's graft, Davis included corium—so that the graft had full thickness skin at its centre and faded out to epidermis at the edges. These bits of skin are placed on the granulating bed about one cm. apart and carefully dressed. Davis recommended that a dry sterile rubber protector be placed over the graft, which serves to press the graft out more flatly. The protective rubber tissue is cut into strips so as not to impede any secretion that may drain from the wound. Next, strips of gauze, wet in some mild antiseptic solution, are placed over the strips of rubber. Davis also states that paraffined gauze directly over the graft followed by a layer of boric acid ointment is valuable. Dressings are removed in a week.

This is a simple method and because a "take" will usually occur on a granulating area even if it is not scrupulously clean, the small deep graft achieved some popularity. But there are 4 great disadvantages.

1. They are cosmetically poor because of numerous humps and hollows and scars and pigmentation.

2. The donor area always becomes heavily scarred.

3. The base contracts and may become thick and keloidal.

4. They offer little protection for they will break down easily if subject to trauma.

These small grafts "take" reasonably well in infected areas and their greatest usefulness lies in starting epithelialization in debilitated persons in whom large donor sites are not available.

The Implantation Method of Skin Grafting

In this procedure skin is removed as for a Thiersch graft and cut into 2-4 mm. squares. With the blunt end of a needle, each square of skin after impalement is pushed obliquely into the granulation tissue until the graft disappears from sight. As the needle is withdrawn, the graft is held in place with tissue forceps. The granulating surface is seeded with grafts about 1 cm. apart.

The only condition that must be ful-

filled is that granulation tissue be present.

Wangensteen for example has been successful in obtaining a "take" with this type of skin graft while faeces from a colostomy was being discharged over the wound.

The indication for this method in general is in those cases in which other methods fail.

Tunnel and Buried Skin Grafts

The buried and tunnel grafts do not represent a different type of graft but merely a unique technique in application.

In tunnel grafting full thickness skin is introduced beneath the surface. After the graft has taken the overlying tissue is cut through to expose the grafted area. The graft has two advantages in that it is not likely to become infected and that it more or less immobilizes itself. The graft is said to be applicable where a full thickness graft is desirable but cannot be employed because of an infected base—an example would be an infected pressure sore. D. G. Smith recently has achieved some quite good results by undermining such lesions as flat scars, moles and moderately sized birth marks, after which he inserts a sheet of full thickness skin over the denuded bed. The wound of insertion is closed. About 10 days later, the superimposed skin is excised and the edges of the skin graft and surrounding skin are coapted with sutures. He claims that his per cent of good "takes" is superior to those obtained with full thickness grafts applied directly to a denuded surface. He also states that one can get a "take" even if some fat is left on the graft. This method, if the contentions of Smith are true, holds considerable promise—for a full thickness graft could be applied easily to the cheek and held there by the pressure of the overlying skin.

Pedicle Flaps

When body contour is lost, tissue in greater amounts than can be provided by the free skin grafts, becomes necessary. Then one attempts to transfer greater bulks of tissue by providing them with a constant blood supply during the course of transfer. This is done by using one of the types of pedicle flaps, the pedicle being the part provided to maintain the graft alive during the course of transfer.

The *Simple Pedicle Flap* is one in which a piece of skin and subcutaneous tissue is cut free on 3 sides, the 4th side being left as a nourishing pedicle. The piece of tissue surrounded by the 3 cut sides is raised and twisted into its new position, the resulting defect in the donor area being closed by direct suture or by free grafting. A simple example of this is the covering of the back of a hand from an abdominal flap. At about the end of 3 weeks the pedicle can be cut.

The *Delayed Pedicle Flap* is a further modification of the former—its use is entirely at the discretion of the surgeon. If he feels that the bulk of tissue he is about to transfer is too great for nourishment from the available pedicle, he will cut 3 sides; raise it, and then suture it back in the same place, thus coaxing the blood supply in along the line of the pedicle, i.e. he cuts the lateral blood supply and encourages the longitudinal blood supply. After a period of waiting; 10 days to 3 weeks, the flap is again raised and switched to the desired position. The common method of rhinoplasty is the classical example of this type. A delayed flap is carefully patterned on the forehead. Its sides are cut leaving a pedicle on the supraorbital vessels and it is then sewn back into position. A free split graft may be sewn on the under side of the flap to provide a lining for the nose. After a

waiting period the whole is raised again and switched down into its position on the nose. The resulting defect on the forehead is grafted with a thick split graft.

It is in the *Tubed Pedicle Flap* that this principle has its greatest expression and provides a means of transporting great masses of tissue to entirely new and distant situations. The graft was introduced by Gilles and Filatoff independently during the last war.

In brief an area of tissue is decided upon usually rectangular in shape and its two sides are cut down through skin and superficial layer of deep fascia. The 2 ends of the rectangle are left as a pedicles and the cut portions of the rectangle are sewn together to form a tube—it looks much like a suitcase handle. The tube has a double blood supply, each of which in the course of 2 or 3 weeks becomes capable of nourishing the whole tube. Then one or other end may be detached and switched to a site closer to its destination or through the medium of an arm or leg, approximated to its ultimate site. Eventually one end is set in at one extremity of the deformity. At a later stage the remaining pedicle is set in at the other end of the deformity and the intervening tube opened out and flattened into its new position. Since all raw surfaces are covered there is little danger of infection. The need of dressings is reduced. The patient may be ambulatory between the stages of the procedure. Since healing takes place more quickly than in the case of an open flap, cicatricial contraction is reduced to a minimum.

One always endeavours to cut the tube parallel to superficial sources of blood supply rather than across them and never to cut across the midline of the body. Some common sites for forming tubes are:

1. The side of the neck which provides good skin for restoration of helix or columella.

2. The acromiopectoral tube—which is often used on the neck and sometimes on the face.

3. The inguinal tube*

4. The Thoraco-epigastric*

*Which lend themselves readily to transfer via the wrist to neck or face.

The donor site is always closed either by direct suture or by free split-skin grafts.

A skin flap has the following advantages:

1. A fairly high resistance to infection.

2. Thickness, for the purpose of filling a defect in contour.

3. Little subsequent contracture.

4. Ability to withstand trauma.

5. The skin is soft and pliable and the colour is normal for the area from which the flap is removed. This latter factor may be an advantage or a disadvantage. Uncommonly it may become pigmented.

The main disadvantages are:

1. First and most important is the number of operations entailed in the transfer. One always has to wait at least 2 to 3 weeks before severing the pedicle and if a tube were to be transferred from the abdomen to the face via the wrist it would take about 2 or 3 months. When so much time is entailed, even if one does not consider the damage to the patients' morale, the economic difficulties are quite tremendous.

2. On a flat surface one does not need an increase of thickness. The application of a flap to a flat surface is likely to give a rolled or bunched clumsy appearance which detracts from the cosmetic result even if the functional result is good.

3. Finally when a very large flap is removed, the damage to the donor site may be considerable and may require a free split graft to repair it.

For the building of organs requiring thickness, for filling a depression in soft tissue, for building a part requiring two soft epithelial surfaces and some thickness such as the nose, the cheek or the lip, and finally as a direct covering for bone or cartilage, the pedicled flap has no equal. But when surface epithelial covering is the only indication a free skin graft gives the most acceptable and efficient results.

The indications for a pedicled flap are briefly as follows:

1. In the fingers where it is essential to cover a guillotine amputation to get added length, or where one side of a finger has been denuded leaving bare bone so that padding is essential. Very often it is desirable in a finger or a thumb to gain as much length as possible or to protect a projecting bone thinly covered by scar. About ¼" in length and a sufficient padding of skin and subcutaneous tissue can be given by transplanting a pedicled flap over the uncovered or projecting bone.

2. In the fingers, hand or foot a pedicle flap is indicated when the tendons are exposed in order to allow movement and later tendon surgery if necessary, but when enough subcutaneous tissue remains a thick split graft will give adequate protection.

3. In certain rather severely burned fingers and hands, better functional results will be obtained if one gets the advantage of good subcutaneous tissue.

4. If bare bone is exposed on the bottom of a foot or over a tibia a pedicle flap is indicated because of the protection it offers and because in these areas a poor blood supply may be present.

5. Over an amputation stump if a scar or unhealed area is present a pedicle flap is necessary. If not weight bearing a split graft might be just as good.

6. Over the larynx where it is difficult to get a skin graft to "take" because of movement.

7. On the face (nose, cheek and ear) if there is defect in contour and loss of subcutaneous tissue a pedicled flap is necessary.

8. In any situation where the blood supply is insufficient or the area will have to stand considerable trauma a pedicle flap is indicated.

Principles of Pre-operative and Post-operative Importance

1. *Cleanliness of the Graft Bed.*

A denuded surface when prepared surgically (such as on an excised scar) is clean if technique is proper and the graft may be placed immediately on it.

A granulating surface must be clean. It is not essential to have a negative bacterial count but the granulations should be clean, firm and cherry red in colour; free from any evidence of pus or slough. An unclean granulating bed is prepared by use of continuous wet dressings and mild antiseptic solutions such as hexylmethylamine or chloramine.

2. Haemostasis must be absolute on a denuded area before the graft is applied—bleeding is controlled by the finest silk ligatures, otherwise blood clots will separate the graft from its bed.

3. When a graft is applied on a granulating bed little punctures are made in the graft to allow the escape of secretions.

4. The graft is sutured to the edges f the wound under moderate tension.

5. Pressure is applied to keep the graft fixed against the base; marine sponges, cotton waste or lint are soft and fluffy enough to keep up a good pressure. Too much pressure may cause ischaemia of the graft. The graft may even be stitched to its bed.

6. Fixation of the part is important as any movement will disturb the graft. Splints are used on extremities if movement is a factor.

7. Prevention of infection after graft has been applied is carried out by bandages and mild antiseptics such as Zeroform or Merthiolate.

8. The raw donor area of a split-skin graft must be protected and this is often accomplished by tanning it, or by dressing it with mild antiseptics and leaving it undisturbed till it is healed.

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196 BLOOR STREET WEST

THE SPLEEN AS A SURGICAL PROBLEM

RONALD M. BREMNER, 4T5

Introduction

ANATOMY

The spleen lies in the left hypochondrium beneath the ninth, tenth and eleventh ribs. It is surrounded by peritoneum which is reflected from its surface at two places—one fold (the gastro-splenic omentum) attaching it to the stomach, the other (the lieno-renal ligament) passing to the left kidney. The outer surface is in contact with the diaphragm while the visceral surface is related to the stomach, the tail of the pancreas, the splenic flexure of the colon and the left kidney. The anterior border is sharp and contains one or more distinct notches which are preserved in most types of splenomegaly. The splenic artery is a branch of the coeliac axis. The splenic vein joins the mesenteric veins to form the portal vein. The lymphatics enter glands in the hilum, their efferents going to the nodes around the coeliac axis.

PHYSIOLOGY

The functions of the spleen are believed to include:

(1) Hemopoesis—normally, of lymphocytes and monocytes; but in times of stress, of other blood cells, thereby resuming its embryonic function.

(2) Reserve of Red Blood Cells.

(3) Filtration from the blood stream and Destruction of

(a) worn-out blood cells of all types,

(b) bacteria and other foreign constituents.

(4) Production of Antibodies.

(5) Hormonal Inhibition of Bone Marrow Activity (Naegele theory).

The presence of the spleen is not essential to life, the other members of the systems to which it belongs being capable of taking on its functions.

The effects of splenectomy are:

(1) Changes in the Blood:

(a) slight temporary secondary anemia,

(b) leucocytosis,

(c) increased coagulability.

(2) Hyperplasia of the Lymphatic Tissue in the body, especially of spleniculi (miniature spleens).

(3) Replacement of much Yellow Bone Marrow by Red Marrow.

Indications for Splenectomy

Removal of the spleen in many cases is not based on any sound physiological or pathological basis, but rather on the clinical observation that patients improve after splenectomy. Splenectomy should be resorted to only after all efforts by conservative medical means have failed to induce a remission. Accessory spleens should be sought and removed. Splenectomy is still, even in the hands of expert surgeons, a serious operation.

RUPTURE OF THE SPLEEN

Etiology—

(1) Traumatic, due to a blow beneath the left ribs with or without external wounds.

(2) Spontaneous, which may occur in diseased and even normal spleens.

Diagnosis—There is always an initial shock, which may be followed by one of three courses:

(1) Continuous downhill course and rapid death.

(2) Recovery from initial shock with signs of a ruptured spleen. This is by far the commonest type. The diagnostic features are:

(a) Locality of the injury, determined by history and external wounds.
(b) General signs of internal hemorrhage, the most valuable being pallor and rapid pulse.
(c) Local signs, due to hemoperitoneum which always occurs.
1. Abdominal rigidity, which is commonly present and most pronounced in the left upper abdomen.
2. Local tenderness, a constant sign.
3. Marked increase of fixed splenic dulness.
4. Shifting dulness in one or both flanks with evidence of increasing collection of fluid in the abdomen is often present.
5. Abdominal distention due to ileus commences about three hours after the accident.
6. Referred pain and/or hyperesthesia at the left shoulder commonly occurs.

(3) Delay in manifestation of indications of the serious intra abdominal catastrophe for a latent period of more than 48 hours, and for a variable period up to 3 weeks. This is due to an intra-capsular hemorrhage which occurred at the time of injury but ruptured after a delayed period.

Differential Diagnosis is important and mainly concerns rupture of the liver and rupture of the kidney. Rupture of the spleen or liver invariably causes hemoperitoneum which necessitates immediate laparotomy in both cases, whereas rupture of the kidney rarely requires emergency surgery and usually resolves without any surgery.

Rupture of liver. The signs are very similar to those of a ruptured spleen, but are likely to be more prominent on the right side.

Rupture of kidney is commonly due to blows in the loin. Usually there is no indication of injury until ½ hour after the lesion has occurred, when pain, shock and gross hematuria soon become evident. Locally, on the affected side, there is fullness of the loin due to perinephric hematoma, and muscular rigidity and tenderness which simulate an intraperitoneal lesion as the extravasated blood forces the posterior parietal peritoneum forwards.

Treatment—In some cases, suture of the spleen or packing the wound with gauze has arrested bleeding and saved life, but as a rule, the best course is to remove the spleen at once as soon as the diagnosis is made.

Rupture of Aneurism of the Splenic Artery is quite rare and presents a clinical picture similar to that following rupture of the spleen itself. Immediate splenectomy with excision of the affected part of the artery is indicated.

MOVABLE or WANDERING SPLEEN is very rare

Etiology—There are various causes, the commonest being congenital visceroptosis, which is most frequent in women.

Diagnosis—There may be no symptoms or there may be a vague dragging pain. The spleen is readily palpable. There may be postural albuminuria, the result of pressure on the left renal vein with temporary congestion of the kidney.

Treatment—An abdominal belt makes many cases comfortable, but if this gives no success, splenectomy is indicated. If the condition is complicated by torsion of the splenic pedicle, splenectomy must then be done.

INFECTIONS OF THE SPLEEN

1. Abscess of the Spleen is rather rare.

Etiology—Splenic abscess is a very serious complication of a co-existing infection. Typhoid fever is the most frequent cause. Other causes are other infective fevers, septicemia, pyemia, infection of a

hematoma and suppuration of a hydatid cyst.

Clinical Picture is characterized by high fever and rigors with painful, tender enlargement of the spleen. Occasionally an abscess is quiet and behaves like a tumor (as does an abscess of the brain).

Complications include rupture into an adjacent viscus, the pleura, peritoneum or through the abdominal wall to the surface.

2. Tuberculosis

Splenectomy is indicated if tuberculosis is limited to the spleen.

Differential Diagnosis of Rupture of	Spleen	Liver	Kidney
Cause	Traumatic or Spontaneous	Traumatic	Traumatic
Pathology	Hemoperitoneum	Hemoperitoneum	Retroperitoneal Hematoma. Associated tear of peritoneum is very rare and is almost confined to children
History: Locality of the Injury	Left Side	Right Side	Either Side
Clinical Picture: General— Shock and Internal Hemorrhage	Immediate	Immediate	May be delayed up to ½ hour
Local Abdominal Signs: Inspection—Change of Contour	None	None	Commonly fullness in loin
Palpation—Abdominal Rigidity	Common in L.U.Q.	Common in R.U.Q.	Not Uncommon
Local Tenderness	Constant	Constant	Common
Percussion—Shifting Dullness	Often present	Often present	Never
Abdominal Distention	Commences about 3 hours later		Unusual (may occur if injury is severe)
Miscellaneous: Referred Pain and Hyperesthesia to Shoulder	Common	Not uncommon	Rare
Gross Hematoria	Never	Never	Usual (within a few hours of accident)

Diagnosis may be confirmed by splenic puncture.

Treatment—Splenectomy is the ideal therapy, but owing to dense adhesions, drainage is usually the only safe procedure.

3. Syphilis

In late lues (especially the congenital variety) associated with splenomegaly and which fails to respond to medical therapy, splenectomy may immediately relieve the patient for the spleen contains

gummata and harbours spirochaetes not amenable to medical treatment.

4. Malaria

Malarial splenomegaly is dangerous since due to its friability the spleen is easily ruptured by mild trauma. Also, some parasitologists believe the spleen harbours the parasite. In view of these considerations, splenectomy may be indicated.

5. Echinococcosis (see Hydatid Cysts)

6. Egyptian Splenomegaly

This disorder, characterized by splenomegaly, secondary anemia, and progressive cirrhosis of the liver from the onset, resembles Banti's disease but is associated with fever and is probably an infection due to bilharzia. The treatment is splenectomy.

CYSTS OF THE SPLEEN

Etiology—

(1) Parasitic cysts, due to hydatid, are the most common.

(2) Non-parasitic cysts include serous, blood and dermoid cysts and the polycystic spleen which usually is associated with congenital cystic kidneys and liver.

Treatment is splenectomy, which may be difficult due to adhesions.

NEOPLASMS OF THE SPLEEN are uncommon.

Primary Types include angioma and lymphosarcoma, which is a hard, nodular, rapidly-growing tumor for which early splenectomy is the only hope of a cure.

Secondary Tumors include malignant lymphoblastomata and metastatic carcinoma, most commonly from the breast.

HEMOLYTIC ANEMIAS

1. Hemolytic or Acholuric Jaundice

Etiology is obscure. The familial and congenital form is the usual type, though it may not appear until the second decade. The acquired form is very rare and far more serious; it is confined to women and without operation is almost always fatal.

Pathogenesis—Excess bilirubin is formed outside the liver by means of increased destruction of red blood cells in the reticulo—endothelial system, especially in the spleen. The disease is thus really a hemolytic anemia due to increased fragility of the red blood cells which results from their globular shape, a defect in their manufacture. The abnormal cells are named spherocytes.

Clinical Picture is characterized by recurrent crises during which there is exacerbation of the splenomegaly, jaundice and secondary anemia. In more than half the cases, gall-stones are present, and there may be severe abdominal pain with symptoms and signs of biliary obstruction.

Laboratory Tests

(1) On the blood indicate:

(a) increased fragility of the red cells in hypotonic saline, an absolutely characteristic reaction. Hemolysis of normal red blood cells begins in 0·45% saline and is complete in about 0·30% saline. Hemolysis of the abnormal spherocytes occurs in 0·60% saline or even in solutions more nearly approximating physiological saline.

(b) increased icterus index. The van den Bergh reaction is delayed and indirect.

(2) On the urine indicate increased urobilin but no bilirubin.

Treatment—Splenectomy has proved to be a practical way of bringing quick and permanent relief of symptoms. It produces a clinical cure of the anemia and jaundice by removing the chief destructive agent of the defective red blood cells, but

it does not alter the original defect responsible for the increased red blood cell fragility which therefore persists. It is unwise to operate during a crisis, although successful splenectomies have been performed at such a time. Operation is not so often indicated in the less severe familial type; results are less satisfactory in the acquired form.

2. Erythroblastic Anemia

The classification of this disorder is quite unsatisfactory. It is considered by some as a juvenile form of Banti's disease, by others as a separate clinical entity. The term may include one or several disease entities. The term "von Jaksch's anemia" should be dropped, for the disorder so inadequately described by him is now known to include several types of blood dyscrasia, among which is Cooley's anemia, a term usually considered synonymous with erythroblastic anemia.

Incidence—The anemia is found in children under 10 years of age and commonly appears sometime after the first year. There is generally a racial and familial incidence.

Clinical Picture is characterized by a moderate to profound anemia in which red blood cells and hemoglobin are greatly decreased but great numbers of nucleated cells are found. There is typical facial appearance, slight hepatomegaly, considerable splenomegaly and distinctive bone changes.

Treatment—Splenectomy may actually retard the progress of the disease and prolong life, but in many of the patients it seems to have no effect or even to increase the anemia. Only with further differentiation may it be possible to select in a more satisfactory way than is possible at present, patients who will be helped by splenectomy.

3. Icterus Gravis Neonatorum

is a form of erythroblastic anemia of the fetus in which the baby is born jaundiced with a large spleen and a greatly increased number of erythroblasts in the blood. Splenectomy, performed within a few hours after birth has been attempted as therapy.

BANTI'S DISEASE or SYNDROME

In its initial stages, this disorder is termed "splenic anemia"; only when clinical evidence of hepatic cirrhosis appears is the name of Banti correctly associated with it.

Incidence—

age: commoner in young and middle life, before 40;

sex: commoner in males.

Pathogenesis is obscure. The generally accepted idea which is still hypothetical is that the disease is a vascular disturbance of the spleen due to increased portal blood pressure, which may result from several primary causes (such as thrombo-phlebitis of the splenic vein, pressure on the splenic vein by a mass outside of it) but that only in later stages is cirrhosis of the liver superadded.

Pathology—The spleen is greatly enlarged, very firm and tough, with a thickened capsule and in a state of advanced fibrosis. The cut surface has a beefy appearance. Microscopically there is dilatation of the sinuses and general fibrous thickening of the splenic reticulum.

Clinical Picture of this disorder is also rather indefinite. In the usual course there is an insidious onset lasting a long time marked by lassitude, a mild secondary anemia and leucopenia of unknown cause. Then splenomegaly becomes evident; the spleen is hard, slightly irregular and may be painless or cause a dull, dragging pain due to its weight. Development

of clinically evident cirrhosis of the liver is the next step, but is unusual. Ascites appears, and the anemia increases. There are no specific blood findings. A hemorrhagic tendency, usually hematemesis, may be a special feature which can occur at any stage during the illness and recur at intervals for many years.

Treatment—Splenectomy is the only satisfactory treatment, and is even indicated in the late stages. Such operation generally leads to cure if performed before hepatic involvement and to improvement if performed afterwards. It may not stop the bleeding and hemorrhages may continue.

ESSENTIAL THROMBOCYTOPENIC PURPURA

The cause is unknown and fortunately the condition is very rare. It is most common in children, but may occur at any age.

Clinical Course may be acute or chronic. In the acute form an attack lasts 2 to 12 weeks and usually ends fatally. The chronic type is much the commoner and may continue for years or occur intermittently with spontaneous remissions and long intervals between attacks.

Diagnosis—There is a history of recurrent periods of bleeding, with cutaneous purpuric spots and hemorrhage from mucous membranes. There may be a moderate splenomegaly. In the blood: there is a very low platelet count; there may be a secondary anemia; the white blood count is usually normal; the prothrombin level is increased. The capillary resistance test is positive, indicating increased permeability of capillaries. The bleeding time is considerably prolonged. Coagulation time is normal but power of clot retraction is poor or lost so that there is no extrusion of serum. Examination of the marrow by sternal puncture reveals normal or increased megakaryocytes.

Differential Diagnosis

(1) *Thrombocytopenic purpura secondary to another pathological process* affecting the bone marrow and among other things decreasing the formation and maturation of platelets:

(a) Bone marrow carcinomatosis, other extensive neoplasia.

(b) Blood diseases, especially
aplastic anemia—severe anemia and leukopenia;
aleukemic leukemia—characteristic cells in bone marrow.

(c) Intoxications from acute infections, food sensitization, X-ray, radium, sulfonamides, benzol, arsphenamine, ergot.

(2) *Hemophilia*—hereditary history, normal platelet count, normal capillary resistance test, normal bleeding time, prolonged coagulation time with good, firm, but slow clot retraction.

Treatment—Splenectomy is the established method of treatment for chronic and recurrent cases and leads to complete cure. It is dangerous in the acute stage, but may be successful when preceded by full transfusion. Splenectomy is a justifiable risk in spite of the danger of hemorrhage since the prognosis without operation is hopeless. Ligation of the splenic artery appears to be as successful as splenectomy and entails less risk. The therapeutic effect is difficult to explain. There is no evidence for the assumption that the spleen destroys platelets too rapidly and no pathological change has been observed in spleens removed from patients suffering from the disease. The theoretical basis for this form of treatment is the observation that removal of the spleen in a normal animal is followed by a marked rise in platelets. This also

occurs in patients, but only temporarily, for the platelets fall to the original level within a few months and yet most patients remain free from purpuric and hemorrhagic manifestations. Occasionally the purpura returns in a year or two, indicating that splenectomy may only lead to a temporary, not a permanent, cure; such cases are likely a secondary purpura and were incorrectly diagnosed.

GAUCHER'S SPLENOMEGALY

This is a rare, probably familial disorder of lipoid metabolism commonest among Hebrews during childhood.

Clinical Picture presents an enormous splenomegaly with slight anemia and leucopenia. There may be bleeding from the nose and gums, but no hematemesis, and brownish discoloration of the skin. *Treatment* is symptomatic. Splenectomy holds no hope for a cure and is indicated only for distress and discomfort due to size and weight. However, it is generally believed that splenectomized patients have a longer and more comfortable life.

HODGKIN'S DISEASE

Splenectomy would be indicated in primary splenic Hodgkin's disease if such a diagnosis could be made. It is suggested in the few cases reported in which splenic enlargement was apparently the only clinical evidence of the disease.

MYELOGENOUS LEUKEMIA

Splenectomy was formerly believed valuable when performed early in the disease after the size of the spleen had been pre-operatively reduced by radium. It is now realized that splenectomy is of no avail in controlling the condition, and such an operation should not be considered.

PERNICIOUS ANEMIA

Splenectomy sometimes caused temporary improvement for short periods post-operatively, but did not alter the essential course of the disease. Improvement following splenectomy could be paralleled by spontaneous remissions or therapeutic transfusions. Now that specific therapy for pernicious anemia has been discovered and proven, splenectomy is never indicated. The treatment of this disorder is entirely medical.

Summary

The conditions most benefitted by splenectomy are rupture of the spleen, familial hemolytic jaundice, splenic anemia and essential thrombocytopenic purpura hemorrhagica.

References

Boyd, *Textbook of Pathology* (Edition 3).

Bailey and Love, *A Short Practice of Surgery* (Edition 6).

Cecil, *Textbook of Medicine.*

Christian, *Osler's Principles and Practice of Medicine* (Edition 15).

Christopher, *Textbook of Surgery* (Edition 3).

Conybeare, *Textbook of Medicine* (Edition 6).

Handfield-Jones and Porritt, *The Essentials of Modern Surgery* (Edition 2, 1943).

Pernokis, E. W., *Splenectomy in Medical Practice, J.A.M.A.*, 118, pp. 865-869 (March 14, 1942).

Rowlands and Turner, *The Operations of Surgery,* Volume II (1927).

FRENCH CASE HISTORY*

There are many students to whom French, though a familiar language, is a medically impossible one. They are unequipped to ask the French patient any of the leading questions in a case history. For their benefit we are reprinting this questionnaire which was first published in McGill Medical Journal in April, 1941; these questions have been translated from the English equivalents in parentheses beside them. It will not cover all eventualities, but it will be a basis for finding out at least the fundamentals of the case. A special type size page has been used for those who wish to tear this out and fit it in their Guide to Case Reporting.

Previous Admissions and Family History:

Quel est votre nom? (What is your name?)

Quel âge avez-vous? (How old are you?)

Quelle est votre occupation? (What is your occupation?)

Etes-vous déjà allé à l'hôpital? (Have you ever been to a hospital?)

Où? *or*

A quel hôpital êtes-vous allé d'abord? (What hospital were you in?)

Pourquoi? *or*

De quoi souffriez-vous? (What were you suffering from?)

Votre père (mère) vit-il? (vit-elle)? (Are your mother and father living?)

Est-il (elle) malade? (Is he (she) sick?)

De quoi est-il (elle) mort? (What did he (she) die of?)

Combien de frères et de soeurs avez-vous? (How many brothers and sisters did you have?)

Combien d'entre eux sont vivants? (How many of them are living?)

De quoi les autres sont-ils morts? (What did the others die of?)

Les vivants sont-ils tous bien? (Are those living all well?)

Est-ce que quelqu'un souffre de la tuberculose dans votre famille? (Is there any TB in your family?) De cancer, de diabète, de rhumatisme inflammatoire, d'épilepsie, de maladie de coeur, de reins, d'estomac ou mentale? (Cancer, diabetes, rheumatic fever, epilepsy, heart trouble, kidney trouble, stomach trouble, mental diseases?)

Personal History:

Où êtes-vous né(e)? (Where were you born?)

Combien de temps avez-vous demeuré au Canada? (How long have you lived in Canada?)

Avez-vous eu—la rougeole (measles); la coqueluche (whooping cough); la diphtérie; la varicelle ou "picote volante" (chicken pox); les oreillons (mumps); la fièvre scarlatine (scarlet fever); le rhumatisme inflammatoire (rheumatic fever); la jaunisse (jaundice); la pneumonie (pneumonia); la pleurésie; la typhoïde; la gonorrhée (gonorrhea); la syphilis?

Avez-vous déjà été opéré? (Have you had any operations?)

Avez-vous déjà eu un accident? (Have you ever had any accidents?)

Fumez-vous? Combien de cigarettes, pipes, cigares, par jour? (Do you smoke? How many a day?)

Prenez-vous des remèdes? (Do you take any drugs?) Régulièrement? (Regularly?)

Prenez-vous de l'alcool? Tous les jours? (Do you drink? Every day?)

Functional Inquiry:

Avez-vous déjà eu mal aux oreilles? Oneelles déjà coulé? Avez-vous déjà été sourd? (Have you ever had an earache, discharging ears, deafness?)

Avez-vous déjà eu mal aux yeux? La lecture vous donne-t-elle mal aux yeux? (Have you ever had trouble with your eyes? Does reading give you a headache?)

Avez-vous souvent le rhume de cerveau? (Do you often have head colds?) Votre nez saigne-t-il souvent? (Do you often have nosebleeds?) Votre nez coule-t-il dans votre gorge? (Does your nose drip into the back of your throat?) Avez-vous mal à la tête avec vos rhumes? (Have you a headache with your colds?)

Avez-vous souvent mal à la gorge? (Do you often have sore throats?)

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Avez-vous déjà eu des glandes enflées dans votre cou? (Have you ever had swollen glands in your neck?) Le goître? (Goiter?) Avez-vous déjà eu des motons dans vos seins? (Have you ever had any lumps in your breasts?) Vos seins, ont-ils déjà saigné? (Have you ever had discharging nipples?)

Avez-vous déjà toussé plus d'un mois? (Have you ever coughed for more than one month?) Toussez-vous beaucoup? (Do you cough much?) Avez-vous souvent mal dans la poitrine? (Do you often have a pain in your chest?) Transpirez-vous beaucoup la nuit? (Do you sweat much at night?) Avez-vous eu des frissons? (Have you had chills?)

Vous essoufflez-vous facilement? (Are you short of breath?) Plus facilement que des gens de votre âge? (More than others of your age?) Avez-vous des palpitations? (Have you palpitations?) Vos pieds enflent-ils le soir? (Do your feet swell at night?)

Votre appétit est-il bon? (How is your appetite?) Vos intestins se vident-ils régulièrement? (Do your bowels move regularly?) Votre digestion est-elle bonne? (Is your digestion good?) Avez-vous "mal au coeur" après les repas? (Are you nauseated after eating?) Vomissez-vous? (Do you vomit?) Avez-vous mal à l'estomac? (Have you abdominal pain?) Combien de temps apres vos repas? (How long after meals?) Vos selles ont-elles déjà été pâles ou noires? (Have your stools ever been pale or black?) Avez-vous déjà eu des hémorroïdes? (Have you ever had piles?) Avez-vous déjà eu du sang dans vos selles? (Have you ever noticed blood in your stools?)

Vous levez-vous la nuit pour uriner? (Do you get up at night to pass your water?) Combien de fois? (How often?) Combien de fois urinez-vous le jour? (How many times a day do you pass your water?) Est-ce que cela vous fait mal? (Is this painful?) Voyez-vous quelquefois du sang dans votre urine? (Do you ever see blood in your urine?)

A quel âge vos périodes ont-elles commencé? (At what age did your periods begin?) A quel intervalle viennent-elles? (How long between periods?) Combien de temps durent-elles? (How long do they last?) Est-ce que vous perdez beaucoup? (Do you bleed much?) Avez-vous beaucoup de douleur? (Have you much pain?) Avez-vous des pertes blanches? (Have you leucorrhoea?) Quand vos périodes ont-elles cessé? (When did your periods stop?)

Comment est votre femme (votre mari)? (How is your wife? (husband)?

Combien d'enfants avez-vous? (How many children have you?) Sont-ils bien? (Are they well?) Avez-vous eu des fausses-couches? (Have you had any miscarriages?) Avez-vous eu des accouchements difficiles? (Have your labors been difficult? (Le docteur, s'est-il servi d'instruments? (Did the doctor use instruments?)

Avez-vous souvent mal à la tête? (Do you often have headaches?) Etes-vous souvent étourdi? (Are you often dizzy?) Voyez-vous double? (Do you see double?) Entendez-vous du bruit dans vos oreilles? (Have you ever ringing in your ears?) Est-ce que vos mains tremblent? (Do your hands tremble?) Marchez-vous droit? (Do you walk straight?) Dormez-vous bien? (Do you sleep well?) Vous tracassez-vous? (Do you worry?)

Avez-vous eu des éruptions de peau ou des ulcères? (Have you ever had any rashes or ulcers on your skin?)

Avez-vous eu mal à vos jointures? Ont-elles déjà enflé? (Have you pain in your joints? Do they ever swell?) Est-ce que vos pieds et vos jambes sont souvent froids ou engourdis? (Are your hands and feet often cold or are they numb?) Avez-vous des picotements aux pieds ou aux mains? (Have you tingling in your hands and feet?)

History of the Present Illness:

Depuis quand êtes-vous malade? (How long have you been sick?)

Quand avez-vous arrêté de travailler? (When did you stop working?)

Avez-vous engraissé ou maigri? (Have you gained or lost weight?)

Avez-vous perdu des forces? (Have you lost strength?)

Etes-vous plus pâle qu'avant votre maladie? (Are you paler now than you were before you got sick?)

Physical Examination:

Relâchez, s'il vous plaît. (Relax please)

Avalez, s'il vous plaît. (Swallow please)

Avez-vous déjà remarqué . . . (Have you ever noticed . . .)

SPEECH PROPOSING THE HEALTH OF THE GRADUATING YEAR

December 1944.

Mr. Chairman, Mr. Dean, Fellow Guests, Ladies and Gentlemen of the Graduating Year.

It is kind of you to give me the honour of proposing this toast, for it is an honour, and as I see it also a responsibility. You will remember that in your first year I read you sermons sometimes, in the Science and Civilization course, and I had opportunities too in your Second and Third years. I count myself one of the happiest members of the Faculty in this, that I can be with students during the first three years. Now, you give me another opportunty for a Parthian Shot at you.

May I say at the outset that I realize that the traditional spirit of speeches on this occasion is expressed in the words of Byron:

"Let us have wine and women, mirth and laughter
"Sermons and soda-water the day after"

But I cannot be amusing except unconsciously, and I warned your President, when he asked me to speak, that my speech would be serious, one more sermon in fact.

You call this your Graduation Banquet. The word "graduate" is used in precisely the same sense to describe the act of marking degrees on the stem of a thermometer, or on the person of a student at the various stages of a University course. The word is derived from the Latin—Gradus a step, and this Banquet celebrates the step you are all about to take over the threshold of this School of Medicine out into a world full of impending changes for the good or evil of future society, changes in every aspect of domestic, national and international society and no least part in these changes will be played by your profession. I cannot help calling your attention in this parting sermon to the almost fearful responsibility which is carried by the men and women graduating in Medicine in this Year of Grace. In the first place you are entering a profession which represents the most privileged group, the most monopolistic group if you like, in Society. It has done so ever since Thomas Linacre, through the good offices of Cardinal Wolsey, obtained letters patent from King Henry VIII in 1518 for the establishment of the Royal College of Physicians. But with the privileges which were granted, went fearful responsibilities: responsibilities which have been gallantly and faithfully borne by your predecessors and I know you will bear them so, all your lives. In the second place *your* particular responsibility is even greater I fear, for, at a time when manhood and youth have been called by the State to risk life in battle for the defence of Christian civilization, a wise State has ordained that you remain here to complete your training, and you have thus been preserved, I hope, from the worst dangers of war for the strenuous work of post-war readjustment.

May I now pursue, for a few moments, this topic of post-war readjustment, particularly as it affects our Faculty. Everywhere, the best minds have been seeking ways and means for the readjustment of society, realizing that this fearful war is a warning that unless western civilization is reorientated, it is doomed to destruction.

Now in seeking the underlying causes, not alone of this war but of the many evil aspects of our social structure which were all too apparent before the war, of which indeed the war itself is at once a symptom and a consequence, thinking men everywhere have agreed that one cause has been a weakening of the determination to preserve the ideals of Christian civilization. This in turn is explained, they believe, by the fact that States, with the laudable aim of abolishing illiteracy, have set up everywhere in the last three-quarters of a century, systems of State Education which are almost entirely pragmatic in their philosophy and have year by year become more practical and less humanistic in their teachings. Today, the aim of education seems more and more to be to train boys and girls for successful competition in a material world and less and less for membership in a Christian democracy. In other words the humanistic side of education has been more and more neglected for the materialistic side. Society has had to depend for its continued bearable existence, on a multiplicity of systems, laws, tariffs, dictatorships, and many other systems which have failed because Society could not depend also on what Plato called the "dispositions" of the citizens. It is the price we have paid for neglecting the liberating aspects of education. A liberal education has its intrinsic value for the individual, for as David Starr Jordan reminded his students many years ago "The whole of your life must be spent in your own company and only the educated man is good company to himself", but the value of a liberally educated citizenry to the State is greater still. A recent writer has well stated "one merit of Greek humanism is to have realized that the goal of politics is human good; another to have seen that it can only be reached by human means", for, as he goes on to say, "men are saved by their virtues not by their political machinery". As Isocrates, a contemporary of Plato, said "Such as are wisely governed therefore, have not their piazzas covered with edicts; they have the principles of Justice engraven on their hearts".

Now, if it be true that only a liberally educated man can make a truly good citizen, how much more true is this for the man who adds the responsibility of a profession to his citizenship, and particularly if that profession be Medicine. Those responsible for medical education on this continent and in England have long been concerned about the necessity for a humanistic background for medical training and as I have no doubt you know, your Medical Faculty is at present attempting to devise a new curriculum for our medical school which shall consist of four years of preclinical and clinical medicine preceded by two years of a Liberal Arts course of Honour standing. The Engineering Faculty is attempting to achieve the same end in a different way.

Do not make the mistake of thinking that we believe this to be an ideal solution of the problem. It is not. The only satisfactory solution is a truly liberal primary and secondary education. Indeed there is some danger that we may do more harm than good by attempting to perform in the University the task that should have been performed in the schools unless we make very plain to the education authorities why we are compelled to do this; in the hope that they will undertake what, to my mind, is the most important of all projected post-war reforms viz. a liberalization of education. There are those who honestly doubt, too, whether two years of this Honour Arts course will add much to the liberal education which a medical student

in any case may, and undoubtedly does, obtain from his medical course, whether two years of premedical science plus English, History and Philosophy can give students that "Habitual vision of Greatness" which Professor Whitehead has well said is the essence of a liberal education. I am reminded here of some verse by J. E. Middleton in a recent issue of *Saturday Night* in which a young navigator of a Flying Fortress, as he flies over the Atlantic, suddenly discovers some of the values of *his* liberal education.

The Navigator Speaks

"Yawning, I heard the gray Professor spiel
About the poets of the Eastern Group;
Longfellow, Whittier and the tidy boys
Writing their verse on some New England stoop.
They weren't so hot, as far as I could see.
Majoring in English! Honest, that was me!

"And then he turned to Bryant, and he read
A thing called "Thanatopsis", fairly long
And gloomy as the devil; full of death,
And how it nips alike the weak and strong.
I had no time for Bryant by the ream.
The coach had told me I might make the team.

"Hell! I was young, and what was death to me?
Only a word. I had a lot to do,
Graduate, marry, have a lot of kids,
Get rich and have my name in Whoziz Who.
And now I'm navigating on a Flying Fort.
—This fellow Bryant was a smart old sport.

"Come over here and get a load of this,
'Old Ocean's gray and melancholy waste.'
That's telling them! He knew his stuff all right.
How many times that old gray fog I've faced
And wondered how I brought the crate across
When half my pals were missing—total loss!

"Each time I change a course to catch the beam
I hear that gray Professor reading yet,
And so I bought the darned old book today
And here's the poem—funny stuff to get.
Majoring in English! Honest, that was me!
And missing Bryant till I flew the sea."

There is one other aspect of post-war reform in the University about which I want to say a few words. It is an old obsession of mine but it was brought to mind

recently when reading a report from Switzerland of events in the Universities of Holland during the German occupation. One of those universities, Leyden, is as you know famous in the history of medicine as the first to inculcate the clinical method of instruction and as the school which trained the best English physicians of the 17th and early 18th centuries. As all the world knows the Dutch universities put up a gallant resistance to the regimentation attempted by the Nazis and the experience of Faculty and Students during the occupation led them to a reconsideration of the fundamental structure of the university. The first problem for which they felt they must find a solution, was to discover a method by which the university might revert to the old conception of a *"Universitas magistrorum et scholarium",* i.e. a society for masters and scholars. In other words adversity showed the need for the more intimate association of Faculty and Students in solving the problems facing the University. It was put, in the report, somewhat in these words "The university should be, above all, a community for shaping its alumni to be the responsible bearers of spiritual values". This, they concluded, can only be done in a *"Civitas Academica* where Professors (Seniores) and Students (Juniores) live and study in intimate community". They conclude that the whole educational policy of the University must be viewed in the light of this "Civitas" concept, i.e. that we are all members (citizens) of this community (Academy, University).

The Faculties and Students of the Universities of Holland were forced to this conclusion under the strain of their bitter struggle with the Nazis, but I believe that their conclusions have equal force for universities which, when peace has been declared, attempt to fulfil their highest purpose under the conflicting and frustrating conditions of the modern world. I must not take time to enlarge on this subject but I suggest that we too, might try to develop our faculty of Medicine into something more closely resembling than it does now, a "civitas academica". It is not easy to accomplish under modern conditions in a large faculty in a very large University but it is important, I think, to attempt it if both Faculty and Students are to derive maximum values from their academic lives.

It is to this end, as a very small beginning, that I have advocated and now advocate that this annual banquet which celebrates your final emergence, after six years spent in study, from the status of Juniores to that of Seniores, from that of pupils to that of professional colleagues, should be an occasion of mutual rejoicing and that the task of arrangement, *and the expense,* should be shared equally by the Faculty and the graduating year.

Finally, Mr. Chairman, may I say to the Sixth Year on behalf of all my colleagues that as you take this final *gradus,* you carry with you our confidence in your competence, valour, and honour and our best wishes for your future.

I now ask my fellow-guests to rise and to join me in drinking a toast to

THE GRADUATING YEAR.

Abstracts

K. F. CLUTE, B.A., Editor

Contributors

R. M. Bremner
J. B. Firstbrook
R. J. Holden
H. Kalant
R. K. MacDonald
Miss I. D. Moon

Medicine I

Diabetes Insipidus

George M. Jones, M.D.
Archives of Internal Medicine
August 1944, Vol. 74, No. 2

Diabetes insipidus is a symptom complex, characterized by polyuria and polydipsia and produced by damage of the supraoptico-hypophyseal tract. It is not a specific aetiologic entity, a fact which is too little recognized by the medical profession in general.

Pathogenesis

Only quite recently has the explanation of this symptom complex been satisfactorily determined. It has been shown that there exists a hypothalamic-hypophyseal system, including the supraoptico-hypophyseal tract, which operates as a functional unit, and that injury to any part of this system may cause diabetes insipidus.

Both the pars nervosa and the pars anterior have a function in water balance —the former an antidiuretic effect, the latter a diuretic effect—and both are normally in equilibrium. Secretion of the antidiuretic principle by the pars nervosa is dependent upon innervation through the supraoptico-hypophyseal tract, which must be injured bilaterally before diabetes insipidus results. Diabetes insipidus may be considered the result of an uncompensated activity of the pars anterior unchecked by the antidiuretic factor of the pars nervosa. Evidence suggests that this antidiuretic substance is of a hormonal nature and acts directly on the renal tubules with stimulation of these cells to reabsorb more water from the lumen of the tubule, an action which leads to retention of body water and reduction in the flow of urine. The inability to concentrate urine is characteristic of patients with diabetes insipidus. Since the polyuria is primary to the polydipsia, patients with diabetes insipidus, when deprived of fluids, will continue to have a large volume of urine of low specific gravity, with resultant dehydration and loss of weight.

There is a physiologic reserve of the pars nervosa, well over half of which bilaterally must be non-functioning before even the slightest increase in exchange of fluids occurs. With differences in the amount of the non-functioning portion, there may be all degrees of diabetes insipidus.

Aetiology

The causative factors of diabetes insipidus in order of incidence are tumour (either primary or metastatic) at the base of the brain—causing two-thirds of the cases: syphilis as a gumma or basal meningitis, traumatic injury, non-syphilitic basal meningitis or encephalitis, and tuberculoma.

Treatment

Therapy in any case of diabetes insipidus should be directed towards the

aetiologic factor if such is amenable to specific treatment.

Symptomatic relief is afforded by administration of posterior pituitary to replace the antidiuretic principle which is lacking. Various methods of administration are available, but intramuscular injection of pitressin tannate is the most desirable at present. It affords a slower, more prolonged absorption of the substance and results in decreased frequency of injections as well as avoidance of disagreeable side effects of hypodermic injection of solution of posterior pituitary.

Use of a low-salt diet is valuable in tending to maintain polyuria at a minimum level.

R. M. B.

Medicine II

Causation of Mongolism

M. Engler
Journal of Neurology, Neurosurgery and Psychiatry

January and April, 1944

The group of aments termed mongols has been the subject of much investigation. The cause of mongolism is still obscure, and it remains impossible to say whether there is a single cause for all cases of mongolism or whether various aetiological factors are to be held responsible. Numerous contributions have dealt with the influence of heredity, alcoholism, syphilis, lack of vitamins and hormones, foetal hyperthyroidism, diminished potency of the secretion of the corpus luteum, and infusion of racial Mongolian blood into the family. Ill-health, privation and anxiety of the mother during gestation certainly have some influence upon the development of the mongol. The fact that the majority of mongols (70%) are the last-born of rather large families and that the age of the mother is rather advanced in most cases has suggested the theory of uterine exhaustion as an aetiological factor.

The author has investigated over 100 cases of mongolism and has formed his own opinion as to the probable cause of this amentia. The unhealthy condition of the mucous membrane of the uterus at the time of implantation of the impregnated ovum seems to be the chief cause of mongolism. An unhealthy mucosa at this time impedes adequate nutrition of the ovum and thus normal development of the foetus. The age of the mother and uterine exhaustion may influence the condition of the uterine mucosa, but a prime factor contributing to this unhealthy condition is miscarriage immediately preceding the birth of the mongol. It is irrelevant whether the miscarriage is brought about by mechanical intervention (curettage), by intake of irritants (abortifacients), by shock or by syphilis. The author cites several cases to illustrate his contention.

R. M. B.

Medicine III

A Dietary Treatment of Asthma and Hay Fever

E. M. Abrahamson, Ph.D., M.D.
U. S. Naval Medical Bulletin, 40: 711, 1942

In 1941, the author reported that hyperinsulinism is a necessary factor in the production of attacks of bronchial asthma in sensitive individuals. The investigation had been suggested by a comparison of asthmatics and diabetics. The former have a tendency to low fasting blood sugars, frequently have associated hypothyroidism, are improved by hyperthyroidism, and are aggravated by NaCl. Diabetics show opposite characteristics.

While the two diseases are frequently found in the same family, they are very rare in the same individual.

Twelve asthmatics, including seasonal and bacterial types, were given 6-hour glucose tolerance tests. Each showed abnormal hypoglycaemia and each had an attack when levels below 65 mgm. % were reached. As a therapeutic test all 12 cases were placed on the Harris diet which corrects hyperinsulinism. No desensitizing injections or adrenaline were used. All remained comfortable.

From the foregoing, one would not expect asthma in diabetics, but it does occur rarely. The difficulty is removed if spontaneous hypoglycaemia can be demonstrated in these cases. The author studied 5 cases of asthma in diabetics and he reports 2 in detail. A 53-year-old diabetic of 5 years standing suffered severe nocturnal asthmatic attacks requiring adrenaline injections to allow sleep. Blood sugar after a 6 hour fast was 67 mgm. % accompanied by intolerable asthma. A glass of milk brought comfort and her blood sugar rose to 130 mgm. % in 30 minutes. She was given the Harris diet and taken off insulin. In 3 months she was almost asthma-free; in a year she was completely relieved. There was no 6th hour hypoglycaemia and her diabetes was under better control than ever before. The second case was similar except that he went off the diet several times with a quick return of symptoms.

The author also investigated and treated 6 cases of hay fever in the same manner. All showed 6th hour hypoglycaemia and all had negligible symptoms after a few *days* on the Harris diet. They remained on the diet during their hay fever seasons, then reverted to normal diets but avoided sweets and coffee. An 11-year-old boy who had suffered severe hay fever for 3 years was relieved completely. One evening, however, he drank 3 bottles of a popular caffeine-containing beverage and awoke that night with severe sneezing lasting nearly an hour. A week later, still sceptical, he repeated the experiment with the same result.

The Harris diet which corrects functional hyperinsulinism consists of a high fat, low carbohydrate, normal protein diet in frequent, small meals. Fat depresses the over-sensitive insulin apparatus. Carbohydrate is taken as polysaccharide rather than as rapidly absorbed monosaccharide. Candy, sugar, and cake are avoided because they stimulate the sensitive islet cells to pour out excess insulin. Frequent, small feedings help maintain a steady, lowered rate of glucose absorption. Caffeine induces rapid glycogenolysis and is prohibited. The diet is followed for 3 weeks, then extra feedings are dropped gradually. In 2 months the patient is on a normal three-meal diet, but sweets and caffeine are eliminated permanently.

J. B. F.

Medicine IV

Low-Back and Leg Pains. Some Clinical Considerations

Joseph C. Yaskin, M.D., and
Arthur Finkelstein, M.D.
Philadelphia

Clinics, Vol. 3, No. 2, page 26
August, 1944

This well written article is a comprehensive review of the more common and important clinical entities resulting in complaints of low-back and leg pain. The introduction includes a rapid survey of pertinent anatomical and physiological concepts of the lumbo-sacral region. There is also an outline of a history espe-

cially relevant to the complaint of low-back pain.

The main body of the paper deals with various conditions giving rise to low-back pain, and these conditions are placed in a very convenient method of classification, so much so that I repeat the classification here:

(a) *Orthopaedic Conditions.*
1. Myositis, Fibrositis, Fasciitis.
2. Spondylolisthesis and Congenital Defects.
3. Sacroiliac Disease.
4. Lumbosacral Disease.
5. Fractures and Dislocations of the Vertebrae.
6. Inflammatory Diseases of the Vertebral Column.
7. Arthritis of the Spinal Column.
8. Tumours of the Vertebral Column.

(b) *Visceral Diseases.*
1. Intrapelvic Cancer (prostate, rectum, uterus, and ovaries).
2. Retroperitoneal Tumours (retroperitoneal sarcoma, renal carcinoma, hydronephrosis, perinephritic abscess).

(c) *Systemic Processes.*
1. Spinal Meningitis.
2. Local Infection.
3. Senile Osteoporosis of the Spine.
4. Paget's Disease.
5. Von Recklinghausen's Disease of Bone.

(d) *Neurologic Conditions.*
1. Tumour.
2. Epidural Infections.
3. Herpes Zoster.
4. Radiculitis.

(e) *Protruded Intervertebral Discs.*
Hypertrophied Ligamentum Flavum.

(f) *Psychalgias.*

The last two subdivisions are gone into in great detail and differential diagnosis is stressed. The article is profusely illustrated by roentgenograms of twenty-six cases.

For anyone wishing to brush up the differential diagnosis of low-back pain, this concise, clear, and well illustrated article is a "must".

R. J. H.

Obstetrics and Gynaecology

A Consideration of Therapeutic Abortion

S. A. Cosgrove, M.D., and
Patricia A. Carter, M.D.

American Journal of Obstetrics and Gynaecology, 48: 3, 299

The writers contend that the significance of therapeutic abortion is not fully appreciated by members of the medical profession. From the time of conception the life of the child should be respected just as is the life of every other individual in the state—consider the elaborate investigation prior to the execution of a criminal.

It is emphasized that individuals who meet the academic requirements of medical schools are not necessarily automatically endowed with a high moral code. Their instruction is the responsibility, not of the Church or the State, but of the medical profession. It is felt that some organization such as the American Medical Association should formulate a guide for doctors.

Some of the usual indications for therapeutic abortion are discussed. The pregnancy must have some *imminent* threat on the life of the mother. The authors feel that parents who conceive a child have some responsibility towards it.

Figures are quoted re the incidence of therapeutic abortion at prominent American centres:

Johns Hopkins Hospital—2.88% of viable deliveries.

Bellevue Hospital—1.16% of viable deliveries.

Margaret Hague Memorial Hospital (where paper was written)—0.006% of viable deliveries.

Attention is drawn to the fact that therapeutic abortion itself has a significant mortality rate.

I. D. M.

Surgery I

The Use of Lycopodium as an Agent to Create a Collateral Circulation to the Myocardium from the Pericardium

J. V. Scola, M.D., and
F. G. Stoesser, M.D., F.A.C.S.

Surgery, Gynaecology, and Obstetrics, Vol. 79, No. 5, November, 1944

In this paper the authors report an experiment in which the pericardial sacs of four dogs and nine rabbits were opened and lycopodium powder placed on the anterior, lateral, and inferior surfaces of the hearts. The animals were killed after six to eight weeks, and in all cases the two layers of pericardium were found to be adherent. One of the animals died seventy-two hours after the operation, and adhesions were already present over the left ventricle; and microscopically several enlarged capillaries were seen, one reaching close to the exudate caused by the lycopodium.

The lycopodium causes no gross fibrosis, and microscopically little fibrous tissue is seen. Indeed, the pericardium can be moved slightly by the finger. On the other hand, the vascular reaction is so extensive that in the rabbit's pericardium, which normally shows very few vessels, vessels are readily seen in those areas where adhesions have formed. The authors are of the opinion that the amount of fibrous tissue is insufficient to constrict these newly-formed vessels by contraction at a later date.

In order further to demonstrate that communication had been established between the pericardial sac and the heart, an experiment was carried out in which the aorta was ligated and severed just distal to the coronaries and into the distal portion of the aorta was injected a mixture of India ink and dead staphylococci. Sections of myocardium and pericardium both showed black specks in the gross, and microscopically both the ink and the bacteria were seen in the myocardial capillaries.

Finally, one of the dogs into whose pericardial sac lycopodium had been placed was operated upon eight weeks later and the common left coronary artery and its main branches were ligated. After the operation, the dog continued its normal activities until it was killed ten weeks later.

K. F. C.

Surgery II

Late Closure of Wounds

Major Patrick Clarkson, M.B., F.R.C.S.

Lancet, 247 : 395, September 23, 1944

Although it is the aim of the medical services to evacuate serious casualties as rapidly as possible to a place where they can be treated adequately and promptly, there is still a certain proportion of wounds which cannot receive adequate surgical care until late. The usual routine for late wounds was formerly conservative secondary suture with minimal

paring and rough approximation by heavy sutures, occlusion in plaster, or pinch grafts. These have yielded relatively poor results, and the author advocates radical attack on late wounds.

The recommended technique, used in a series of 78 late wounds, is thorough excision back to good surgical material, reconstituting the original wound. The defect is then closed at the same operation, by direct approximation and suture, after wide undermining of the wound edges. While this is the treatment of choice, in some instances the loss of tissue is too great, and pedicled, or even free, grafts must be used. In some cases, satisfactory results can be best achieved by a combination of all three methods. For wounds over 120 sq. cms. in area, a free graft is usually necessary, at least in part, but the extent of undermining, which can be carried out to allow approximation of the edges, is surprisingly great—e.g. 8-11 cms. of undermining may be done on the thigh, without necrosis of the edge. Basic points in technique are discussed in detail: haemostasis, closure, local antiseptics, fixation, suture care, and movement. The author favours plaster spicas with windows, where possible, and light compression bandages elsewhere. Active movement is not undertaken for 3 weeks, to prevent wound disruption of the undermined flaps.

The nature of healing by scar contracture is described, and the importance shown of providing adequate skin cover. Bacterial infection was fairly common, and no discharging wound was considered suitable for immediate closure. The incidence of infection, and the agents, are discussed in detail, as are the causes of tissue loss: destruction, surgery, and infection. Local penicillin application promises to be very useful.

Results were good, with only 2 serious infections and 2 cases of skin flap necrosis due to ischaemia. Other complications are discussed, and tables presented, listing all the cases in the author's series.

The paper is valuable, but rather difficult to read.

H. K.

Surgery III

A Comparison of Various Types of Local Treatment in a Controlled Series of Experimental Burns in Human Volunteers

James A. Dingwall III, M.D., and
William DeW. Andrus, M.D.
Annals of Surgery, 120: 377
September, 1944

In this study, the authors have investigated the relative merits of common local treatments for burns. Eighty-two identical burns were produced, by causing bilateral symmetrical second-degree burns on the thighs of 41 human volunteers, by means of a metal steam-plate. The burns were covered by dry sterile gauze for 24 hours, then local treatment was instituted. One burn on each volunteer was treated by a sulphanilamide-impregnated cellulose film of buffered pH. The remaining burns were treated by various agents, including escharotics (tannic acid, triple dye, triethanolamine-sulphadiazine- methocel), bland ointments (boric acid ointment, vaseline), penicillin ointment, sulphadiazine-gelatin, cellulose film, and others.

The most rapid healing, with fewest symptoms or complications, was obtained by the use of the sulphonamide-impregnated film. Bland ointments gave practically as good results, especially when supplemented by sulphonamides topically or orally. However, due to the more even

pressure of the plastic film, as compared with the gauze mesh on which the ointments were applied, the regenerating epithelium tended to spread more evenly.

Escharotics were found to give a higher incidence of infection, much slower healing, more pain and tenderness, and healing by granulation rather than by epithelialization—i.e. conversion into a deeper burn.

The rate of healing was inversely related to the number of times the dressing was changed. The incidence of infection was raised, the more often the dressing was changed. Although all the burns were made on skin previously treated with alcohol and iodine, 50% yielded positive cultures at the time of treatment. There was no relationship between this early contamination and rate of healing. Later gross infections were very much reduced by the use of sulphonamides, even though positive cultures were obtained from the burn sites.

Sulphonamide sensitization, as determined by patch tests, occurred in six cases, *at the burn site only,* and this disappeared in all, by five weeks. In only one case did generalized sensitivity arise during active treatment, and this disappeared subsequently, as shown by patch test.

In a few cases which were not débrided at initial treatment, healing was as rapid and as good as in the remaining cases, which were carefully cleaned of all devitalized tissue.

H. K.

Surgery IV

Tannic Acid and the Treatment of Burns: An Obsequy

Roy D. McClure, M.D., Conrad R. Lam, M.D., and Harvard Romence, M.D.

Annals of Surgery, 120: 387
September, 1944

Treatment of burns by tannic acid was first instituted at the Henry Ford Hospital, Detroit, in 1924. Now, the workers above, at the same hospital, advocate discarding the method.

Severe liver necrosis had been noted, for several years, in burns of relatively small area, treated by tannic acid; but only in 1940 was tannic acid accused of being the agent responsible for the liver lesion. To investigate the relationship, these workers carried out an extensive series of severe burns, treating alternate cases with tannic acid and with vaseline-pressure dressings.

Four illustrative cases are presented from this series. The two cases treated by tanning showed severe impairment of liver function, as shown by elevated icteric index, decreased plasma prothrombin, and positive cephalin-cholesterol test. One of these patients died, and autopsy revealed extremely marked liver necrosis. The two comparable cases treated by vaseline-pressure dressings showed practically no hepatic upset. Accumulated cases from the literature show that such hepatic lesions are present almost entirely in cases treated by tannic acid.

In addition, experimental evidence is given, to show that tannic acid delays the local healing of the burn.

The authors feel that the great reduction in burn mortality with the use of tannic acid was really due to the attention given the other factors in burn treatment. At the Ford Hospital, no reduction in

mortality was obtained with tannic acid, but rather, a rise.

Therefore the authors feel that the method should be discarded.

H. K.

Surgery V

Sympathetic Block

Proposed Therapy in Traumatic Shock
D. Engel, M.D., F.R.C.S.(Ed.)
British Medical Journal
September 30, 1944

On the basis of animal experiments, the author has concluded that the vascular phenomena of traumatic shock consist of two phases: (i) a period of greatly increased capillary permeability in the traumatized area, for about five hours after injury, (ii) a subsequent period of reduced capillary permeability. He has found, experimentally, that regional sympathectomy, or local anaesthetization of the sympathetic ganglia associated with the part, greatly reduces the degree of fluid loss during the first stage. To be of any value, the anaesthetic must be injected during the first stage, and it must be of relatively short duration, because the period of decreased permeability does not develop in a sympathectomized limb.

No clinical tests of the effectiveness in human beings have been made so far. But several authors are quoted in support of the theory that sympathetic overactivity plays a role of some importance in the development of shock. And an author is quoted on a method of central sympathetic stimulation which she uses during the second stage, which would appear to be complementary to the suggestions advanced here.

The value of this technique is far from conclusively proven, but it offers pos-

"They know I'll be home every night at a quarter to six. If I'm delaycd, they depend on me to telephone.

"They depend on me for a lot of things.

"If the day should come when I don't come home . . . I want them to go on depending on me just the same.

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sibility of becoming an important adjunct to present methods of treating shock.

H. K.

Surgery VI

Root Neuritis vs. Appendicitis

Gordon Murray, M.D., F.R.C.S.(Eng.), F.R.C.S.(C.)

Canadian Medical Association Journal, Vol. 51, No. 4

From a study of a large series of patients, the author has come to the conclusion that the diagnosis of appendicitis for a group of symptoms attributed to that condition is often incorrect, and that the expression, "chronic appendicitis", is a misnomer, the condition being practically non-existent as shown by an investigation of the pathology.

Microscopic examination of nearly all inflamed or previously inflamed appendices causing symptoms discloses a picture of acute inflamation or fibrosis resulting from a one-time acute inflammation. No sections could justifiably be termed chronic appendicitis.

Of the cases admitted to the Toronto General Hospital in the last ten years for operation for appendicitis, only about half were acute appendicitis as proved by operation. The other half had a history and physical findings which were not, in the author's opinion, indicative of appendicitis but rather constituted a syndrome, and, of the ones operated on, the appendix was normal.

This latter half presented a history of *pain*, present for months and years, of a shooting nature and not confined to the limits of the abdomen, unlike acute appendicitis. Gastro-intestinal dysfunction was in no way suggested, vomiting occurring only in hysterical patients.

Localized tenderness even over McBurney's point may be shown to be due only to superficial hyperalgesia and hence misleads the examiner. Hyperaesthesia of this syndrome may extend beyond the abdomen to the base of Scarpa's triangle, the crest of the ilium and the gluteal region, which never occurs in acute appendicitis.

Examination of the back may show hyperaesthesia over the posterior division of T 9, 10, 11, 12, or L 1, and almost constantly there is deep tenderness over the point of emergence of this division. Pressure over this area may duplicate the patient's symptoms.

These cases have a temperature of about 99°F or even a normal temperature. Rectal examination is negative. The W.B.C. is about 11,000 and the patient does not look ill.

Symptoms occur just as often on the left side but are not a source of worry to the patient or the doctor as much as when they may be confused with appendicitis.

Before the syndrome is diagnosed, ureteritis, ruptured Graafian follicle, salpingitis and other abdominal lesions must be eliminated.

It is suggested that the syndrome is of somatic nerve pain of obscure aetiology, possibly due to subherpetiform reactions or myelitis from a virus infection. Novacaine block of the affected root is described, and it relieves many cases but recurrence is common.

R. K. M.

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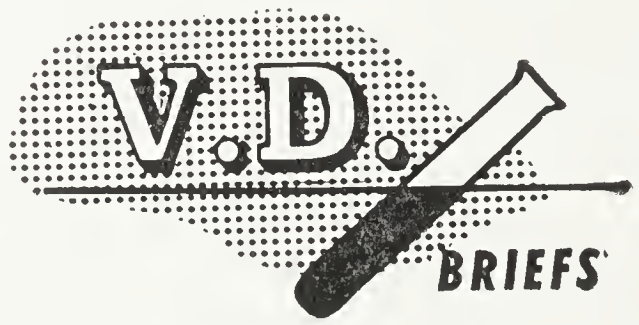


". . . Yes it does" . . . Osler.

"But I see an incredulous look on some faces and I hear the whispered comment—'tis heard often enough! 'Where is all this syphilis? It does not come my way.' Yes it does. The syphilis we see, but do not recognize, everywhere awaits diagnosis, so protean are its manifestations." Sir William Osler's warning to the Medical Society of London, like any unlearned lesson, bears repeating.

Possible Miscarriage of Justice!

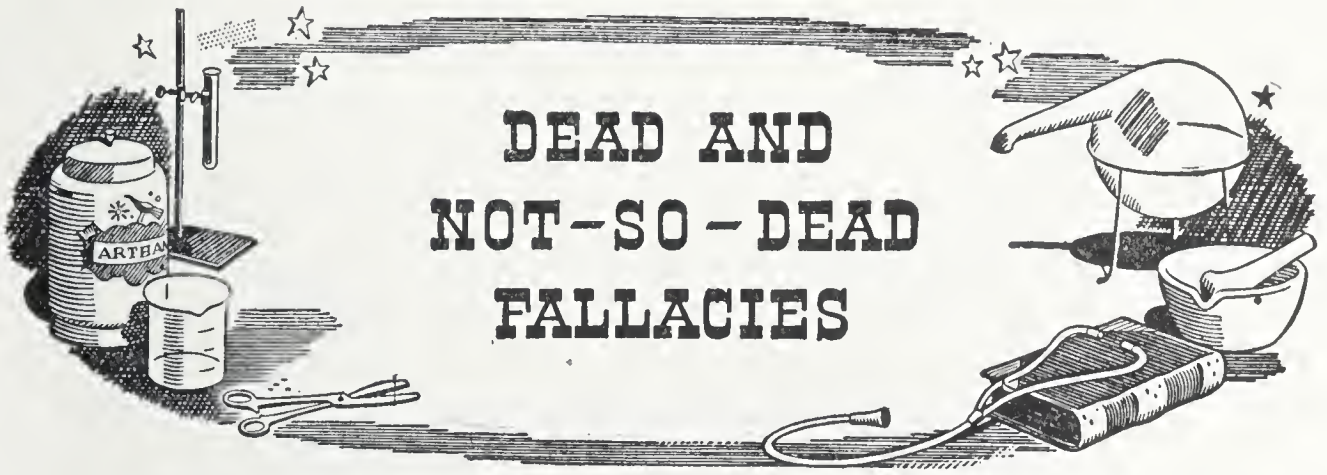
"Syphilis!"—A grim sentence to pass on a patient—the hazards of the disease and its treatment—its repercussions on the family group—personal heartache!! Only the most **convincing evidence** merits a diagnosis of syphilis. **Never** should the diagnosis of syphilis rest on a **single positive blood test!** FALSE POSITIVE blood tests do occur!!!

—"treat when in doubt"—Gonorrhoea in Women

"With the public health in mind it is far better to treat some women who are not infected, than to neglect to treat women whose infection is not obvious but who may serve as a source of infection to others. Any woman who has recently had intercourse with a man known to have gonorrhoea should herself be given treatment regardless of clinical or laboratory findings. Women who are believed or known to practice indiscriminate sexual intercourse are usually infected and had best be treated if leukorrhea is present. Laboratory evidence in such cases is desirable but not essential for the institution of treatment by the foregoing scheme."

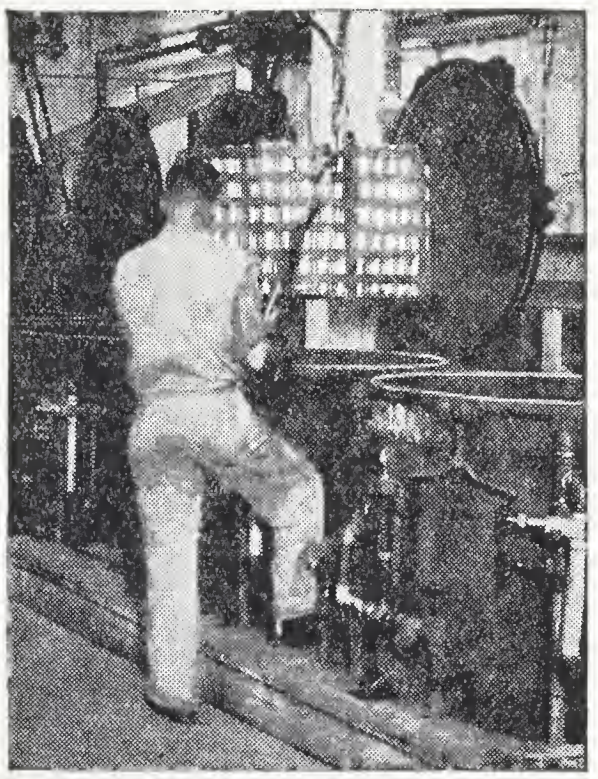
"Venereal Disease Information" May 1943.

"Find V.D. Contacts—Report V.D. Cases"



DEAD AND NOT-SO-DEAD FALLACIES

PERKINS TRACTORS, two short bars of different metals, caused an 18th century sensation. When an ailing body was stroked with them, the ailment was supposed to be subsequently cured. Actually, the mental effect induced was its only value.



CANNED FOODS are raw and need to be cooked. This idea is still believed today, although entirely untrue. The above illustration shows canned food being processed by heat at controlled temperatures higher than those obtainable in the home.

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In conditions such as simple insomnia, restlessness and hysteria, where a sedative is capable of producing a restful unbroken sleep, a barbiturate having a moderately long sedative effect is often preferable.

Ipral Calcium is considered as belonging to the class of barbiturates which possess a moderately long duration of action. Administered orally, approximately an hour before sleep is desired, one or two 2-grain tablets are usually sufficient to induce a 6 to 8-hour sleep from which the patient awakens generally calm and refreshed.

Ipral Calcium is a plain white tablet. There are no markings of any kind by which it might be recognized by the patient.

Ipral Calcium (calcium ethylisopropyl-barbiturate Squibb) is widely used. It is quite readily absorbed, rapidly eliminated and free from cumulative effects when dosage is properly regulated.

Supplied in ¾-grain and 2-grain tablets in bottles of 100; the 2-grain tablets are also available in bottles of 1000.

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